



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,458	08/29/2003	Shunpei Yamazaki	0553-0164.01	8760
7590 07/08/2005				
Edward D. Manzo Cook, Alex, McFarron, Manzo, Cummings & Mehler, Ltd. 200 West Adams St., Ste. 2850 Chicago, IL 60606			EXAMINER LE, THAO X	
			ART UNIT 2814	PAPER NUMBER
DATE MAILED: 07/08/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.		Applicant(s)	
	10/651,458		YAMAZAKI ET AL.	
	Examiner		Art Unit	
	Thao X. Le		2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 42-71 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 42-71 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/517,542.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>14 June 2005</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### **Acknowledgement**

1. Applicant's cancellation of claims 1-41 in the amendment file on 14 June 2005 is acknowledged.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 14 June 2005 has been entered.

### ***Specification***

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### **Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a

Art Unit: 2814

patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 52-54, 57-59, 61-69, 71 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6157429 to Kimura et al.

Regarding claims 52, Kimura discloses a display device in fig. 20 comprising: a semiconductor substrate 1, column 37 line 11, a switching transistor 221, column 20 line 27, and a current controlling transistor 223, column 20 line 28, formed on the substrate each comprising a source region a drain region, see claim 2, and a gate electrode 131, column 37 line 18, and a gate insulating film 251, column 37 line 18, an electrode (right portion next to 131) electrically connected with one of the source region and the drain region of the switching transistor 221, a dielectric layer 252, column 37 line 18, formed on the electrode (right portion next to 131), a power supply line 133, column 20 line 53, fig. 1, or 213, column 27 line 45 fig. 11, electrically connected with one of the source region and the drain region of the current controlling transistors 223 and formed on the dielectric layer 252, fig. 20, a first electrode 141, column 37 line 25, electrically connected with the other one of the source region and the drain region of the current controlling transistors 223, an organic EL layer 224, column 37 line 17, formed over the first electrode 141; and a second electrode 105, column 37 line 24, formed over the organic EL layer 224.

Regarding claims 53, 58, 63, and 68, Kimura discloses the display device wherein the first electrode 141 overlaps the power supply line 133 (extending portion of 133 to FET 110), fig. 1 and 20.

Art Unit: 2814

Regarding claims 54, 59, 64, and 69, Kimura discloses the display device wherein the electrode (right portion of 131) comprises one selected from the group consisting of Al, Ta and Ti, column 37 line 20.

Regarding claims 61 65-66, and 71, Kimura discloses a display device wherein the display device is incorporated in at least one selected from the group consisting of a portable telephone, a video camera, a mobile computer, a goggle type display, a projector, an electronic book, a digital camera, and a DVD player, fig. 24-25 column 40 lines 35-55.

Regarding claim 57, Kimura discloses a display device in fig. 20 comprising: a semiconductor substrate 1, column 37 line 11, a p-channel switching transistor 221, column 20 line 27 and column 39 line 52, and a n-channel current controlling transistor 223, column 20 line 28 and column 30 line 25, formed on the substrate each comprising a source region a drain region, see claim 2, and a gate electrode 131, column 37 line 18, and a gate insulating film 251, an electrode (right portion next to 131) electrically connected with one of the source region and the drain region of the p-channel switching transistor 221, a dielectric layer 252, column 37 line 18, formed on the electrode (right portion next to 131), a power supply line 133, column 20 line 53, fig. 1, or 213, column 27 line 45 fig. 11, electrically connected with one of the source region and the drain region of the n-channel current controlling transistors 223 and formed on the dielectric layer 252, fig. 20, a first electrode 141, column 37 line 25, electrically connected with the other one of the source region and the drain region of the n-channel type current controlling transistors 223, fig. 20, an organic EL layer 224, column 37 line 17, formed

Art Unit: 2814

over the first electrode 141; and a second electrode 105, column 37 line 24, formed over the organic EL layer 224.

Regarding claims 62, Kimura discloses a display device in fig. 20 comprising: a semiconductor substrate 1, column 37 line 11, a switching transistor 221, column 20 line 27, and a current controlling transistor 223, column 20 line 28, formed on the substrate each comprising a source region a drain region, see claim 2, and a gate electrode 131, column 37 line 18, and a gate insulating film 251, column 37 line 18, an electrode (right portion next to 131) electrically connected with one of the source region and the drain region of the switching transistor 221, a dielectric layer 252, column 37 line 18, formed on the electrode (right portion next to 131), a power supply line 133, column 20 line 53, fig. 1, or 213, column 27 line 45 fig. 11, electrically connected with one of the source region and the drain region of the current controlling transistors 223 and formed on the dielectric layer 252, fig. 20, a storage capacitor comprising the electrode (right portion next to 131), the dielectric layer 252, and the power supply line 133, fig. 20, a first electrode 141, column 37 line 25, electrically connected with the other one of the source region and the drain region of the current controlling transistors 223, an organic EL layer 224, column 37 line 17, formed over the first electrode 141; and a second electrode 105, column 37 line 24, formed over the organic EL layer 224.

With respect to storage capacitor, inherently the disclosed structure of Kimura would constitute a capacitor that normally comprises a two electrodes and a dielectric layer interposes between two electrodes.

Art Unit: 2814

Regarding claim 67, Kimura discloses a display device in fig. 20 comprising: a semiconductor substrate 1, column 37 line 11, a p-channel switching transistor 221, column 20 line 27 and column 39 line 52, and a n-channel current controlling transistor 223, column 20 line 28 and column 30 line 25, formed on the substrate each comprising a source region a drain region, see claim 2, and a gate electrode 131, column 37 line 18, and a gate insulating film 251, an electrode (right portion next to 131) electrically connected with one of the source region and the drain region of the p-channel switching transistor 221, a dielectric layer 252, column 37 line 18, formed on the electrode (right portion next to 131), a power supply line 133, column 20 line 53, fig. 1, or 213, column 27 line 45 fig. 11, electrically connected with one of the source region and the drain region of the n-channel current controlling transistors 223 and formed on the dielectric layer 252, fig. 20, a storage capacitor comprising the electrode (right portion next to 131), the dielectric layer 252, and the power supply line 133, fig. 20, a first electrode 141, column 37 line 25, electrically connected with the other one of the source region and the drain region of the n-channel type current controlling transistors 223, fig. 20, an organic EL layer 224, column 37 line 17, formed over the first electrode 141; and a second electrode 105, column 37 line 24, formed over the organic EL layer 224.

With respect to storage capacitor, inherently the disclosed structure of Kimura would constitute a capacitor that normally comprises a two electrodes and a dielectric layer interposes between two electrodes.



### **Claim Rejections - 35 USC § 103**

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 42-45, 47-49, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6157429 to Kimura et al. in view of US 4839707 to Shields

Regarding claim 42, Kimura discloses a display device in fig. 20 comprising: a semiconductor substrate 1, column 37 line 11, a switching transistor 221, column 20 line 27, and a current controlling transistor 223, column 20 line 28, formed on the substrate each comprising a source region a drain region, see claim 2, and a gate electrode 131, column 37 line 18, and a gate insulating film 251, column 37 line 18, an electrode (right portion next to 131) electrically connected with one of the source region and the drain



Art Unit: 2814

region of the switching transistor 221, a dielectric layer 252, column 37 line 18, formed on the electrode (right portion of 131), a power supply line 133, column 20 line 53, fig. 1, or 213, column 27 line 45 fig. 11, electrically connected with one of the source region and the drain region of the current controlling transistors 223 and formed on the dielectric layer 252, fig. 20, a first electrode 141, column 37 line 25, electrically connected with the other one of the source region and the drain region of the current controlling transistors 223, an organic EL layer 224, column 37 line 17, formed over the first electrode 141; and a second electrode 105, column 37 line 24, formed over the organic EL layer 224.

But, Kimura does not expressly disclose the device comprising an insulating layer formed on the semiconductor substrate.

However, Shields discloses a display device in fig. 1 comprising a semiconductor layer 15, column 4 line 18, formed on an upper surface of the insulating layer 13 column 4 line 18, and a gate electrode 29, column 45 line 34, adjacent to the semiconductor layer 15 with a gate insulating 27, column 4 line 34, interposed therebetween (SOI substrate). At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the SOI teaching of Shields with display device of Kimura, because the SOI structure would have isolated both the polysilicon layer and the device layer that would have eliminated shorts rising from leaky diodes as taught by Shields, column 3 line 55-60.

Regarding claims 43, 51, Kimura discloses a display device wherein the display device is incorporated in at least one selected from the group consisting of a portable telephone, a video camera, a mobile computer, a goggle type display, a projector, an electronic book, a digital camera, and a DVD player, fig. 24-25 column 40 lines 35-55.

Regarding claims 44, 48, Kimura discloses the display device according to claim 42, wherein the first electrode 141 overlaps the power supply line 133 (extending portion of 133 to FET 110), fig. 1 and 20.

Regarding claims 45, 49, Kimura discloses the display device, wherein the electrode (right portion next to 131) comprises one selected from the group consisting of Al, Ta and Ti, column 37 line 20.

Regarding claim 47, Kimura discloses a display device in fig. 20 comprising: a semiconductor substrate 1, column 37 line 11, a p-channel switching transistor 221, column 20 line 27 and column 39 line 52, and a n-channel current controlling transistor 223, column 20 line 28 and column 30 line 25, formed on the substrate each comprising a source region a drain region, see claim 2, and a gate electrode 131, column 37 line 18, and a gate insulating film 251, an electrode (right portion next to 131) electrically connected with one of the source region and the drain region of the p-channel switching transistor 221, a dielectric layer 252, column 37 line 18, formed on the electrode (right portion next to 131), a power supply line 133, column 20 line 53, fig. 1, or 213, column 27 line 45 fig. 11, electrically connected with one of the source region and the drain region of the n-channel current controlling transistors 223 and formed on the dielectric layer 252, fig. 20, a first electrode 141, column 37 line 25, electrically connected with the

Art Unit: 2814

other one of the source region and the drain region of the current controlling transistors 223, an organic EL layer 224, column 37 line 17, formed over the first electrode 141; and a second electrode 105, column 37 line 24, formed over the organic EL layer 224.

But, Kimura does not expressly disclose the device comprising an insulating layer formed on the semiconductor substrate.

However, Shields discloses a display device in fig. 1 comprising a semiconductor layer 15, column 4 line 18, formed on an upper surface of the insulating layer 13 column 4 line 18, and a gate electrode 29, column 45 line 34, adjacent to the semiconductor layer 15 with a gate insulating 27, column 4 line 34, interposed therebetween (SOI substrate). At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the SOI teaching of Shields with display device of Kimura, because the SOI structure would have isolated both the polysilicon layer and the device layer that would have eliminated shorts rising from leaky diodes as taught by Shields, column 3 line 55-60.

9. Claims 46, 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6157429 to Kimura et al. and US 4839707 to Shields as applied to the above claim 42 and 47 and further in view of US 5733661 to Ue et al.

Regarding claims 46, 50, Kimura does not disclose the display device wherein the electrode comprises oxidation film of the electrode.

However, Ue discloses a electrode 1, fig. 2, consists of Ta, Ti, or Ta, column 3 line 64, having a oxidation film 2, fig. 2, column 1 lines 19-22 or column

Art Unit: 2814

4 lines 1-5. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the aluminum electrode teaching of Shields and oxidation film of Ue with Kimura's device, because anodization would have created a metal oxide layer having high electrical insulation properties and function to permits electric current to flow therethrough in one direction and can be used as a protective film for wiring in liquid crystal device as taught by Ue, column 1 lines 23-38, and column 4 line 10.

10. Claims 55, 60, 65, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6157429 to Kimura et al. in view of US 5733661 to Ue et al.

Regarding claims 55, 60, 65, and 71, Kimura does not disclose the display device wherein the dielectric comprises an oxidation film of the electrode.

However, Ue discloses a electrode 1, fig. 2, consists of Ta, Ti, or Ta, column 3 line 64, having a oxidation film 2, fig. 2, column 1 lines 19-22 or column 4 lines 1-5. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the aluminum electrode teaching of Shields and oxidation film of Ue with Kimura's device, because anodization would have created a metal oxide layer having high electrical insulation properties and function to permits electric current to flow therethrough in one direction and can be used as a protective film for wiring in liquid crystal device as taught by Ue, column 1 lines 23-38, and column 4 line 10.

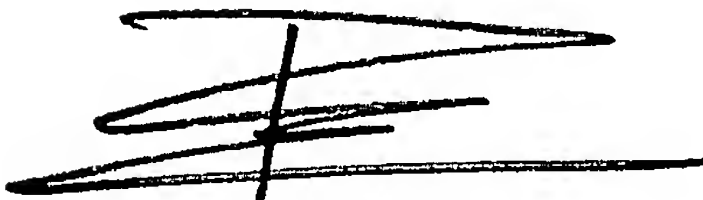
Art Unit: 2814

### **Conclusion**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X. Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on (571) 272 -1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thao X. Le  
Patent Examiner  
30 June 2005